SHOUT
SHARE
IT

251-271 OK - RBS 4/10/42

#256 - 42d Ann. Rpt. - 1930
#262 - 43d Ann. Rpt. - 1931
#270 - 44th Ann. Rpt. - 1932
} OK - RBS 4/24/42

EXPERIMENT STATION LIBRARY

INSPECTION OF COMMERCIAL FERTILIZERS

MADE FOR THE STATE DEPARTMENT OF AGRICULTURE

The inspection of commercial fertilizers reported in this bulletin was made under the direction of the Honorable Andrew L. Felker, Commissioner of Agriculture. The state inspector, Mr. Eugene D. Sanborn, collected samples of 117 brands of fertilizer materials which were offered for sale by dealers or had been delivered to consumers during the year ending June, 1930. The general character of the fertilizer materials collected is shown by the following classification:

Complete fertilizer	93
Nitrogen and superphosphate	1
Superphosphate and potash	1
Superphosphate (acid phosphate)	5
Nitrate of Soda	2
Ground bone	6
Tankage	3
Natural manures	6
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THE FERTILIZER LAW

The New Hampshire fertilizer law applies to all fertilizer materials offered for sale, whether mixed materials in the form of complete fertilizers or unmixed materials as superphosphate (acid phosphate), nitrate of soda, ground bone, tankage, etc. Under the provisions of the law every manu-

facturer or dealer who shall sell or offer for sale any fertilizer material shall furnish with each lot or package a clearly printed statement certifying the brand name under which it is sold, the name and address of the manufacturer, the number of net pounds the package contains and a chemical analysis stating the minimum percentages of nitrogen, of total phosphoric acid, of available phosphoric acid and of water soluble potash. No person shall sell or offer for sale any pulverized leather, hair or wool waste, peat, garbage tankage, or any inert material whatsoever, without an explicit printed statement of the fact conspicuously fixed to every package of such material.

The state official in charge of the administration of the fertilizer law is the Commissioner of Agriculture.

In Table I are given the grades of complete fertilizers collected, the number of brands found in each grade, the average analysis of each grade and the average retail price per ton.

TABLE I

Formula	Number of brands	Average per cent nitrogen	Average per cent total phosphoric acid	Average per cent available phosphoric acid	Average per cent water soluble potash	Average retail price per ton
0.82—9—4	2	1.04	10.25	9.39	4.09	$45.00
0.82—10—3	1	0.85	11.71	10.69	3.00	42.00
1.64—8—2	3	1.85	9.32	8.25	2.15	38.33
1.64—8—10	2	1.74	8.97	8.39	10.00	40.00
1.64—9—3	3	1.79	10.02	9.22	3.13	36.00
1.64—10—2	3	1.81	10.77	10.16	2.15	39.00
1.64—10—4	1	1.85	11.57	10.84	4.16	40.00
1.64—12—4	3	2.00	12.93	12.04	4.30	40.33
2.47—8—4	7	2.52	9.01	8.37	4.10	41.71
2.47—8—10	1	2.57	9.73	8.55	10.25	56.00
2.47—10—4	1	2.81	11.46	10.03	4.26	40.00
2.47—10—6	1	2.70	11.00	10.00	6.03	38.00
3.29—6—10	10	3.31	7.17	6.52	9.80	48.33
3.29—8—4	12	3.42	9.67	8.45	4.15	46.33
3.29—8—7	1	3.58	9.04	8.34	6.59	44.00
3.29—10—4	1	3.43	11.65	10.45	4.00	50.00
3.29—10—5	1	3.36	10.51	10.15	5.18	100.00
4—8—8	1	4.11	8.84	8.23	7.83	45.00
4—10—6	1	4.06	11.36	10.51	6.00	45.00
4—12—4	2	4.32	13.36	11.88	4.20	40.60
4.11—8—7	15	4.21	9.57	8.69	7.00	51.93
4.11—10—5	1	3.89	11.01	10.21	4.79	47.00
4.93—6—4	1	5.05	8.08	7.48	4.00	50.00
4.93—8—7	1	4.94	9.06	8.27	6.82	46.00
4.93—10—4	1	5.10	10.86	10.32	4.16	120.00
5—9—6	1	4.92	11.07	9.35	6.00	54.00
5—10—4	1	4.91	11.79	10.68	3.92	120.00
5.76—6—5	4	5.54	6.95	6.33	5.05	52.22
5.76—8—5	1	5.77	8.94	8.25	5.07	49.00
5.76—8—6	1	5.89	9.61	8.57	6.08	60.00
6—8—6	1	5.65	10.04	9.03	5.66	.....
6.58—6—5	1	6.73	7.26	6.42	5.07	120.00
6.58—6—6	1	5.85	6.50	6.00	6.05	50.00
6.58—16—8	1	6.09	16.90	15.90	8.10	61.00
8—16—16	1	8.00	17.54	16.54	16.28	67.80
8.22—3—8	1	8.12	9.64	6.23	7.89	78.00
8.22—16—14	2	7.85	17.27	16.40	14.40	72.75
10—20—15	1	9.62	24.88	24.02	15.63	76.00

CONFORMITY TO GUARANTEE

Forty-five of the 117 brands analyzed were found to contain less than the guarantee of one or more of the three constituents. The total number of guarantees on the 117 brands was 437, the total number of deficiencies 57, the per cent of the guarantees deficient 13.0. In the last year's inspection this figure was 12.3 per cent. The previous year

it was 19.6 per cent. Many of the deficiencies were comparatively negligible, the small deficiency in one constituent being offset in value by overrun in other constituents.

A detailed summary of the deficiencies in the 45 brands which failed to meet the guarantees follows:

	Number of Brands	Total Deficiencies
Nitrogen, total phosphoric acid, available phosphoric acid and potash	0	0
Nitrogen, total phosphoric acid and potash	0	0
Nitrogen, available phosphoric acid and potash	0	0
Nitrogen, total phosphoric acid and available phosphoric acid	0	0
Nitrogen and total phosphoric acid	0	0
Nitrogen and available phosphoric acid	2	4
Nitrogen and potash	9	18
Nitrogen	14	14
Total phosphoric acid, available phosphoric acid and potash	0	0
Total phosphoric acid and potash	0	0
Available phosphoric acid and potash	0	0
Potash	10	10
Total phosphoric acid and available phosphoric acid	1	2
Total phosphoric acid	4	4
Available phosphoric acid	5	5
	45	57

NITROGEN DEFICIENCIES

One hundred eleven brands were guaranteed to contain nitrogen in amounts varying from 0.82 per cent to 10 per cent. Twenty-five brands failed to meet the guarantee. Fifteen of these brands were deficient less than one-fourth per cent or 5 lbs. of nitrogen per ton. The amounts of the

other deficiencies expressed as pounds per ton are as follows: 5.2 lbs., 5.4 lbs., 6.6 lbs., 7.0 lbs., 7.6 lbs., 9.4 lbs., 10.0 lbs., 11.0 lbs., 13.6 lbs., 14.8 lbs. The greatest deficiency, 14.8 lbs. is equivalent to approximately $3.50 per ton.

PHOSPHORIC ACID DEFICIENCIES

One hundred fifteen brands were guaranteed to contain phosphoric acid. Twelve brands failed to meet the guarantees. Four were deficient in total phosphoric acid, seven in available phosphoric acid and one in both total and available phosphoric acid. Only three of these deficiencies would amount to as much as $1.00 per ton.

POTASH DEFICIENCIES

One hundred samples were guaranteed to contain potash. Nineteen failed to meet the guarantee. The greatest deficiency is equivalent to less than $1.00 per ton.

In the tabulation of the analyses in the following pages deficiencies of two-tenths of one per cent or more are shown in italics. The names of the manufacturers are arranged alphabetically, and under the manufacturer the different brands are arranged alphabetically or numerically by formula.

	Nitrogen		Phosphoric Acid				Potash	
			Total		Available			
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
American Agricultural Chemical Co. New York City								
Agrico for Aroostook	4.94	4.94	8.50	9.06	8.00	8.27	7.00	6.82
Agrico for Grain	1.65	2.12	12.50	13.28	12.00	12.51	4.00	4.22
Agrico for Lawns and Gardens	5.00	4.92	9.50	11.07	9.00	9.35	6.00	6.00
Agrico for Truck	4.11	*3.89*	10.50	11.01	10.00	10.21	5.00	*4.79*
Aroostook Potato Manure	4.11	4.36	8.50	9.50	8.00	8.22	7.00	*6.80*
Bowker's All Round Fertilizer	2.47	2.62	8.50	9.10	8.00	8.55	4.00	4.00
Bowker's Market Garden Fertilizer	3.29	3.10	8.50	8.97	8.00	8.19	4.00	4.00
Bowker's Stockbridge Potato and Vegetable Manure	3.29	3.33	6.50	7.28	6.00	6.77	10.00	10.09
Bowker's Square Brand Corn and Grain Fertilizer	1.65	1.82	8.50	9.61	8.00	8.54	2.00	2.29
Bowker's Stockbridge Early Crop Manure	4.11	4.33	8.50	9.52	8.00	8.84	7.00	7.22
Bowker's Sure Crop Fertilizer	0.82	1.17	9.50	10.23	9.00	9.43	4.00	4.19
Bowker's Potato and Vegetable Phosphate	1.65	1.84	9.50	10.50	9.00	9.56	3.00	3.12
Bradley's Complete Manure with 10% Potash	3.29	3.31	6.50	7.35	6.00	6.91	10.00	10.00
Bradley's Corn Phosphate	1.65	1.65	8.50	9.28	8.00	8.58	2.00	2.12
Bradley's Eclipse Fertilizer	0.82	0.91	9.50	10.28	9.00	9.36	4.00	4.00
Bradley's Potato Fertilizer	1.65	1.65	9.50	9.84	9.00	9.05	3.00	3.21
Bradley's Potato Manure	2.47	2.57	8.50	9.19	8.00	8.27	4.00	4.02

Bradley's XL Super Phosphate of Lime	2.47	2.81	10.50	11.46	10.00	10.03	4.00	4.26
Corn Favorite	2.47	2.70	10.50	11.00	10.00	10.00	6.00	6.03
General Crop Fertilizer	1.65	1.88	9.50	9.82	9.00	9.07	3.00	3.06
Grass and Lawn Top Dressing	4.94	5.05	6.50	8.08	6.00	7.48	4.00	4.00
Monarch Fertilizer	3.29	3.31	8.50	8.85	8.00	8.11	4.00	4.02
Nitrate of Soda	15.22	15.50	.....	.....	.....	.....	.....	.....
Peerless Potato Manure	3.29	3.58	8.50	9.04	8.00	8.34	7.00	*6.59*
Prolific 10% Potash Fertilizer	1.65	1.73	8.50	9.13	8.00	8.69	10.00	10.00
Pulverized Sheep and Goat Manure	1.23	1.12	0.50	1.10	.....	.....	2.00	2.00
Special Ground Bone	2.47	2.71	22.88	24.46	.....	.....	.....	.....
American Cyanamid Co. New York City								
Ammo-Phos-Ko	10.00	*9.62*	.....	24.88	20.00	24.02	15.00	15.63
Apothecaries Hall Co. Waterbury, Conn.								
Bone Meal	2.46	3.14	22.00	23.49	.....	.....	.....	.....
Liberty Corn and All Crops 2—8—2	1.64	2.08	8.00	9.07	8.00	*7.64*	2.00	2.04
Liberty Corn Fruit and All Crops 2—12—4	1.64	2.21	12.00	12.88	12.00	*11.77*	4.00	4.11
Liberty High Grade Market Gardeners' 5—8—7	4.11	4.18	8.00	9.51	8.00	8.69	7.00	7.00
Liberty Lawn Fertilizer	3.29	4.10	11.00	*10.75*	4.00	6.08	.....	.....
Liberty Potato and Market Gardeners' Special 4—8—4	3.29	3.85	8.00	9.76	8.00	8.79	4.00	4.36
Liberty Potato and Vegetable 2—8—10	1.64	1.76	8.00	8.82	8.00	8.00	10.00	10.00
Liberty Special Fertilizer 7—8—6	5.75	5.89	8.00	9.61	8.00	8.57	6.00	6.08
Armour Fertilizer Works Carteret, N. J.								
Armour Big Crop Fertilizer 4—8—4	3.29	3.20	8.50	9.14	8.00	8.49	4.00	4.36

	Nitrogen		Phosphoric Acid				Potash	
			Total		Available			
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Joseph Breck & Sons Boston, Mass.								
Sheep Manure, Breck's Ram's Head Brand	1.46	*1.26*	0.75	0.93	.....	.....	3.00	*2.49*
Burlington Rendering Co. Burlington, Vt.								
Burlington 3—8—4 Fertilizer	2.46	2.51	8.00	9.09	8.00	8.49	4.00	4.19
Burlington 4—6—10 Fertilizer	3.28	3.28	6.00	7.92	6.00	6.34	10.00	*9.73*
Consolidated Rendering Co. Boston, Mass.								
Corenco Sheep Manure	1.23	1.17	0.50	1.17	.....	.....	2.00	1.89
Corenco Superlawn	3.28	3.36	10.00	10.51	10.00	10.15	5.00	5.18
Ground Bone	2.46	2.84	22.90	27.34	.....	.....	.....	.....
Ground Tankage	7.41	7.54	9.15	10.58	.....	.....	.....	.....
Superphosphate 16%	.....	.....	16.00	17.03	16.00	16.00	.....	.....

JOHN C. DOW CO. Boston, Mass.								
Dow's 4—8—4 Fertilizer	3.29	3.80	12.50	15.35	8.00	8.03	4.00	4.33
Dow's 5—8—7 Fertilizer	4.11	4.32	13.50	14.25	8.00	12.54	7.00	7.00
Dow's Pure Ground Bone	2.00	2.48	24.00	24.80	10.00	11.92	.....	.....
Dow's Sheep Manure	1.23	1.27	0.50	1.29	.....	.....	2.00	2.00
EASTERN STATES FARMERS' EXCHANGE Springfield, Mass.								
Eastern States 0—14—6 Fertilizer	.....	.....	14.50	*12.96*	14.00	*12.16*	6.00	6.26
Eastern States 4—8—8 Fertilizer	4.00	4.11	8.25	8.84	8.00	8.23	8.00	7.83
Eastern States 4—10—6 Fertilizer	4.00	4.06	10.50	11.36	10.00	10.51	6.00	6.00
Eastern States 4—12—4 Fertilizer	4.00	4.33	12.50	13.50	12.00	12.69	4.00	4.17
Eastern States 6—8—6 Fertilizer	6.00	*5.65*	8.25	10.04	8.00	9.03	6.00	*5.66*
Eastern States 8—16—16 Fertilizer	8.00	8.00	16.50	17.54	16.00	16.54	16.00	16.28
Eastern States Fine Bone Meal	2.50	2.91	23.00	26.06	.....	.....	.....	.....
Eastern States Nitrate of Soda	15.00	15.14	.....	.....	.....	.....	.....	.....
Eastern States Superphosphate 16%	.....	.....	16.50	17.12	16.00	16.58	.....	.....
ESSEX FERTILIZER CO. Boston, Mass.								
Essex Complete Manure 5—8—7	4.10	4.22	8.00	9.20	8.00	8.64	7.00	*6.80*
Essex Market Garden 4—8—4	3.28	3.28	8.00	8.94	8.00	8.23	4.00	4.09
Essex Peerless Potato Manure 4—6—10	3.28	3.16	6.00	6.80	6.00	6.32	10.00	10.16
Essex Top Dressing 7—6—5	5.75	*5.49*	6.00	6.72	6.00	6.35	5.00	5.10

	Nitrogen		Phosphoric Acid				Potash	
			Total		Available			
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
International Agricultural Corp. Woburn, Mass.								
Animal Tankage	7.25	7.46	20.00	*12.22*	.....	.....	.....	.....
Caribee 5—8—7 Market Garden Fertilizer	4.12	4.66	8.50	9.43	8.00	8.36	7.00	7.00
Crop Grower 5—8—7	4.12	4.12	8.50	9.08	8.00	8.29	7.00	7.00
Ideal 4—8—4	3.30	3.41	8.50	8.68	8.00	8.00	4.00	4.12
Multiple Strength 8—16—8	6.59	*6.09*	16.50	16.90	16.00	15.90	8.00	8.10
Multiple Strength Fertilizer 10—16—14	8.24	*7.56*	16.50	17.73	16.00	17.03	14.00	14.63
New England Special 2—12—4	1.65	1.69	12.50	12.64	12.00	11.86	4.00	4.58
Special 4—6—10	3.29	3.29	6.50	7.38	6.00	6.85	10.00	10.00
Top Dresser 8—6—6	6.59	*5.85*	6.50	6.50	6.00	6.00	6.00	6.05
16% Superphosphate	.....	.....	16.50	16.50	16.00	16.00	.....	.....
Lowell Fertilizer Co. Boston, Mass.								
Lowell Bone Fertilizer 2—10—2	1.64	1.77	10.00	10.86	10.00	10.00	2.00	2.15
Lowell Animal Brand 3—8—4	2.46	2.40	8.00	9.20	8.00	8.46	4.00	4.15
Lowell Corn and Vegetable 4—8—4	3.28	3.35	8.00	9.26	8.00	8.74	4.00	4.13

Lowell Market Garden Manure 5—8—7	4.10	4.10	8.00	9.49	8.00	8.55	7.00	7.16
Lowell Potato Grower 4—6—10	3.28	3.61	6.00	7.37	6.00	6.83	10.00	10.12
Lowell Top Dressing 7—6—5	5.76	*5.49*	6.00	6.76	6.00	6.13	5.00	5.00
MAINE FARMERS' EXCHANGE Portland, Me.								
Produce More 4—6—10	3.30	3.37	6.50	6.98	6.00	6.16	10.00	*9.21*
Produce More 5—8—7	4.11	*3.60*	8.50	9.27	8.00	8.59	7.00	6.88
MANCHESTER RENDERING CO. Manchester, N. H.								
Manchester Animal Brand 5—8—7	4.10	4.10	8.00	8.67	8.00	7.87	7.00	7.00
Manchester Special Fertilizer 3—8—4	2.46	2.53	8.00	8.89	8.00	8.40	4.00	4.13
Tankage	7.75	8.01	.....	11.63	8.00	*5.20*	.....	.....
MERRIMACK FARMERS' EXCHANGE Concord, N. H.								
Corenco Double Strength 10—16—14	8.22	8.14	16.00	16.81	16.00	*15.77*	14.00	14.17
Merrimack Top Dressing 7—6—5	5.76	5.76	6.00	6.77	6.00	6.14	5.00	5.09
Merrimack 2—10—2	1.64	1.84	10.00	10.91	10.00	10.15	2.00	2.11
Merrimack 3—8—4	2.46	2.49	8.00	8.87	8.00	8.36	4.00	4.14
Merrimack 4—6—10	3.28	3.22	6.00	6.83	6.00	6.27	10.00	*9.43*
Merrimack 4—8—4	3.28	3.28	8.00	8.88	8.00	8.28	4.00	4.16
Merrimack 5—8—7	4.10	4.13	8.00	8.87	8.00	8.39	7.00	7.19
Merrimack 7—8—5	5.76	5.77	8.00	8.94	8.00	8.25	5.00	5.07

	Nitrogen		Phosphoric Acid				Potash	
			Total		Available			
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Natural Guano Co. **Aurora, Ill.**								
Pulverized Sheep Manure	2.00	2.32	1.25	2.01	1.00	1.74	1.50	2.41
New England Fertilizer Co. **Boston, Mass.**								
New England Complete Manure 4—6—10	3.28	3.20	6.00	7.03	6.00	6.46	10.00	10.08
New England Corn Phosphate 2—10—2	1.64	1.83	10.00	11.14	10.00	10.35	2.00	2.20
New England Market Garden Manure 5—8—7	4.10	4.16	8.00	9.07	8.00	8.27	7.00	6.82
New England Potato and Vegetable Manure 4—8—4	3.28	3.35	8.00	9.32	8.00	8.72	4.00	4.00
New England Super All Crops Fertilizer 3—8—4	2.46	2.51	8.00	8.71	8.00	8.06	4.00	4.08
New England Top Dressing 7—6—5	5.76	*5.43*	6.00	7.56	6.00	6.70	5.00	5.04
New England Rendering Co. **Brighton, Mass.**								
Ground Bone	2.08	*1.61*	25.17	27.38	.....	.....	.....	.....

Old Deerfield Fertilizer Co. **South Deerfield, Mass.**								
Old Deerfield 5—8—7	4.11	4.39	9.00	9.47	8.00	8.44	7.00	7.13
Old Deerfield 16% Superphosphate	.....	.....	17.00	19.04	16.00	17.69	.....	.....
Pacific Manure and Fertilizer Co. **San Francisco, Cal.**								
Groz-It Brand Pulverized Sheep Manure	1.50	*1.30*	0.75	1.62	0.75	0.97	3.00	*2.36*
Portland Rendering Co. **Portland, Me.**								
Portland Organic Fertilizer 4—6—10	3.28	3.28	6.00	6.82	6.00	6.35	10.00	*9.25*
Portland Organic Fertilizer 5—8—7	4.10	4.10	8.00	8.56	8.00	8.00	7.00	6.89
Rogers & Hubbard Co. **Portland, Conn.**								
Rogers & Hubbard All Soils—All Crops Fertilizer	3.30	3.43	10.50	11.65	10.00	10.45	4.00	4.00
Rogers & Hubbard Corn and Grain Fertilizer	0.82	0.85	10.50	11.71	10.00	10.69	3.00	3.00
Rogers & Hubbard High Potash Fertilizer	2.46	2.57	8.50	9.73	8.00	8.55	10.00	10.25
Rogers & Hubbard Oats and Top Dressing	8.22	8.12	8.00	9.64	3.00	6.23	8.00	7.89
Rogers & Hubbard Potato Fertilizer	1.64	1.85	10.50	11.57	10.00	10.84	4.00	4.16
Rogers & Hubbard Superphosphate	.....	.....	16.50	17.58	16.00	17.07	.....	.....
Rogers & Hubbard 4—8—4 Fertilizer	3.30	3.57	8.00	9.40	8.00	8.72	4.00	4.04
Rogers & Hubbard Fertilizer 5—8—7	4.11	4.39	8.00	9.68	8.00	8.65	7.00	7.06

	Nitrogen		Phosphoric Acid				Potash	
			Total		Available			
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Swift & Co. Baltimore, Md.								
Vigoro	4.00	4.32	12.30	13.28	12.00	*11.07*	4.00	4.23
Tennessee Copper & Chemical Corp. New York City								
Loma	5.00	4.91	10.65	11.79	10.00	10.68	4.00	3.92
Victory Fertilizer Co. Boston, Mass.								
Victory Lawn & Garden Fertilizer	3.29	3.58	10.00	*9.53*	8.00	9.09	4.00	4.26
Virginia-Carolina Chemical Corp. Richmond, Va.								
Bloom Aid	4.94	5.10	11.00	10.86	10.00	10.32	4.00	4.16
Fairway Fertilizer	6.58	6.73	7.00	7.26	6.00	6.42	5.00	5.07